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*Document Version*

Publisher's PDF, also known as Version of record

*Publication date:*

1936

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Buwalda, P. (1936). The Umbelliferae of the Netherlands Indies. Groningen: s.n.

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## THE UMBELLIFERAE OF THE NETHERLANDS INDIES

by

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Besides the *Umbelliferae* of the Netherlands Indies proper, also those of the Malay Peninsula and the non-Dutch parts of Borneo and New Guinea have been taken up in this revision. The materials examined belong to the following Herbaria:

- (B) = the Herbarium of the Botanic Garden, Buitenzorg.
- (BD) = the Herbarium of the Botanical Museum, Berlin—Dahlem.
- (BM) = the Herbarium of the British Museum of Natural History, London.
- (E) = the Herbarium of the Botanic Garden, Edinburgh.
- (G) = the Herbarium of the University, Groningen.
- (K) = the Herbarium of the Botanic Gardens, Kew.
- (L) = the National Herbarium (Rijksherbarium), Leiden.
- (NY) = the Herbarium of the Botanic Garden, New York.
- (Pa) = the Herbarium of the Java Sugar Experiment Station, Pasoeroean.
- (S) = the Herbarium of the Botanic Gardens, Singapore.
- (Sa) = the Herbarium of the Sarawak Museum, Kuching.
- (U) = the Herbarium of the University, Utrecht.

Most of the herbarium materials were sent to Groningen to be examined there. Moreover I had the opportunity to work a few weeks in the Kew Herbarium and in that of the British Museum of Natural History in London.

I render my best thanks to the Directors and Keepers of all these Herbaria for their kind assistance.

### **Umbelliferae.**

For the delimitation and arrangement of the genera this paper follows, without criticism, DRUDE's system as given in *Die Natürlichen Pflanzenfamilien*, III, 8. Therefore it appeared useless to recount the characters of the genera. For those who prefer to determine the genera in the most correct way, *viz.* with help of the anatomy of the fruit, I must refer to DRUDE's excellent key *l. c.* p. 114—115. As none of the

genera has its centre of development in the Malay Archipelago, the lists of synonyms and literature are restricted to the most necessary data.

As a result of this revision, 43 species, belonging to 22 genera, appear to occur in the area considered. Of these species, 16 are cultivated, viz. those of *Chaerifolium*, *Coriandrum*, *Cuminum*, *Apium*, *Petroselinum*, *Trachyspermum*, *Cryptotaenia*, *Carum*, *Foeniculum*, *Anethum*, *Pastinaca*, and *Daucus*, moreover *Trachymene cacrulea* and *Pimpinella Anisum*. Of all these species only *Foeniculum vulgare* and *Daucus Carota* appear to be naturalised in few localities in Java. *Eryngium foetidum* is a weed introduced from America, but is entirely naturalized now. The case of *Torilis japonica* is doubtful. Perhaps it has been introduced from temperate regions, perhaps its area of distribution is entirely natural and reaches from temperate Asia, over a part of tropical Asia, as far as Java. The remaining genera are really indigenous, viz. *Hydrocotyle*, with 3 species; *Centella*, with 1 species; *Trachymene*, with 13 species; *Sanicula*, with 1 species; *Oreomyrrhis*, with 3 species; *Pimpinella*, with 2 species; *Oenanthe*, with 1 species; *Heracleum*, with 1 species, together 25 species. They may, after their total area of distribution, be divided into three groups. The first group is that of *Hydrocotyle* and *Centella*, widely spread north and south of the Malay Archipelago and occurring at low as well as at high elevations. The second group is that of the genera of Asiatic origin. They are chiefly mountain plants of the western parts of the Malay Archipelago, viz. *Sanicula*, spread in eastern direction as far as Timor and Séran; *Pimpinella*, only found in Java and Bali; *Heracleum*, found in Sumatra on one mountain only; moreover *Oenanthe*, spread throughout the area, and even occurring in Queensland. The third group is that of *Oreomyrrhis* and *Trachymene*, having their centre of development in Australia, but protruding far northward, *Oreomyrrhis* as far as Mt. Kinabalu in Borneo, *Trachymene* as far as the island of Mindoro in the Philippines. They are mountain plants, chiefly of the eastern parts of the Malay Archipelago.

### Key to the genera.

- |   |                    |
|---|--------------------|
| 1 Flowers in simple umbels or heads that often are united in more compound inflorescences, but not in compound umbels . . . . . | 2                  |
| Flowers in compound umbels that sometimes are united in more compound inflorescences . . . . .                                  | 7                  |
| 2 Leaves and involucre prickly. Flowers in heads . . . . .  | 5. <i>Eryngium</i> |
| Leaves and involucre not prickly. Flowers in umbels . . . . .   | 3                  |

- 3 Fruit with uncinate bristles . . . . . 4. **Sanicula**  
 Fruit not with uncinate bristles . . . . . 4
- 4 Fruit laterally flattened, not longer than broad . . . . . 5  
 Fruit not laterally flattened, more than twice as long as broad 9. **Oreomyrrhis**
- 5 Mericarps 3-ribbed . . . . . 6  
 Mericarps 7—9-ribbed, with connecting veins between the ribs 2. **Centella**
- 6 Leaves without sheaths, but with distinct, entire stipules. Corolla valvate  
 1. **Hydrocotyle**  
 Leaves with sheaths, with or without lacerate stipule-like appendages. Corolla  
 imbricate . . . . . 3. **Trachymene**
- 7 Mericarps winged at the margins . . . . . 8  
 Mericarps not winged at the margins . . . . . 10
- 8 Fruit strongly dorsally flattened, not longer than broad. Leaves pennate to  
 bipennate, the extreme segments oblong-ovate . . . . . 9  
 Fruit not strongly dorsally flattened, more than twice as long as broad. Leaves  
 tripennate, the extreme segments nearly filiformous . . 19. **Anethum** \*)
- 9 Ovary hairy. Corolla white or reddish, radiating . . . . . 21. **Heracleum**  
 Ovary glabrous. Corolla yellow, not radiating . . . . . 20. **Pastinaca**
- 10 Fruit laterally flattened. Leaves not compound, roundish in outline . . .  
 1. **Hydrocotyle**  
 Fruit not laterally flattened. Leaves usually compound . . . . . 11
- 11 Fruit with a sterile neck or short beak, that is visible on the ovary as a  
 dark-green ribbed neck . . . . . 6. **Chaerophyllum**  
 Fruit without sterile neck or beak . . . . . 12
- 12 Calyx teeth distinct . . . . . 13  
 Calyx teeth not distinct . . . . . 16
- 13 Ovary and fruit bristly . . . . . 14  
 Ovary and fruit entirely glabrous . . . . . 15
- 14 Fruit with uncinate bristles. Stems and leaves hairy. Leaf segments not  
 very narrow. Flowers not radiating . . . . . 7. **Torilis**  
 Fruit with stellate hairs. Stems and leaves glabrous. Extreme leaf segments  
 linear to filiformous. Flowers radiating . . . . . 10. **Cuminum**
- 15 Mericarps hollow at the inside. Primary ribs visible as undulate lines, secondary  
 ribs somewhat more prominent. Flowers radiating . . . . . 8. **Coriandrum**  
 Mericarps not hollow at the inside. Marginal ribs thicker than the lateral  
 ones, secondary ribs none. Flowers not radiating . . . . . 17. **Oenanthe**
- 16 Ovary and fruit entirely glabrous . . . . . 17  
 Ovary and fruit bristly, hairy, or with scale-like trichomes . . . . . 21
- 17 Leaves ternate. Umbels and umbellules few-rayed . . . . . 14. **Cryptotaenia**  
 Leaves pennate or bipennate . . . . . 18
- 18 Flowers yellow or yellowish-green . . . . . 19  
 Flowers white or reddish . . . . . 20
- 19 Involucels many-leaved. Leaves 3—4-pennate with nearly filiformous extreme  
 segments . . . . . 18. **Foeniculum** \*)  
 Involucels 0—2-leaved. Lower leaves tripennate with leaflets obovate or  
 cuneate . . . . . 12. **Petroselinum**